

are spread wide and dropped backward, and free access to the birth-canal is procured. The posture is especially favorable for anæsthesia.

In maternity hospitals the usual Trendelenburg table may be employed with a portion cut out, permitting access to the vulva.

He calls attention to several incorrect methods of using the sheet sling. This should be passed broadly across the back and tied on the outer side of each leg just below the knee. In this way the limbs are rotated outward.

Precocious Maternity.—In the *Montpellier Médical*, 1898, No. 45, VALMALE reports the case of a girl, aged thirteen years and six months, who was delivered of a full-term child in the clinic. She first menstruated when twelve years and eight months old, and conception occurred a month afterward. The child occupied the second position, the vertex presenting. The forceps was applied at the superior strait, and the infant, a male, safely delivered. It weighed 3700 grammes. Its length was 53 cm. The placenta weighed 550 grammes. The patient made an uninterrupted recovery.

This case is reported as an example of precocious maternity, although it is not especially remarkable, as several cases are on record in which the mother was younger than this.

Temperature in Eclampsia.—GMEINER (*Prager medicinische Wochenschrift*, 1898, No. 48) concludes, from a series of papers upon this subject, that fever always accompanies eclampsia when the attacks follow one another rapidly. The type of fever is remittent, and the temperature goes in many cases to 104° F. and above. Prognosis depends not so much upon the height of the fever as upon its persistence and progressive ascent.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

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The Vaccine Bodies.—ARMAND HÜCKEL (*Die Vaccinekörperchen. Nach Untersuchungen an der geimpften Hornhaut des Kaninchens. Zweites Supplementheft der Beiträge zur pathologischen Anatomie und zur allgemeinen Pathologie*, 1898). This work, on the bodies found in the epithelial cells of the rabbit's cornea after inoculation with vaccine virus, forms a monograph of 148 pages. It is beautifully illustrated with four double-page colored plates, containing 179 figures, and represents three years' work on the part of the author. The field of labor chosen is small but elaborately worked

over, and the minutest details of every step of the work are given in full. The subject-matter is divided into three parts.

In the first part, which forms almost two-thirds of the monograph, the author reviews first the literature of his subject briefly, calling attention to the views of Guarneri, Monti, Ruffer, L. Pfeiffer, and others who believe that the vaccine bodies are protozoa, and to that of Salmon, who claims they are derived from leucocytes. He then takes up his own experiments. With vaccine from four-day-old pustules on calves he inoculated the cornea of seventy-six rabbits, thereby obtaining 130 preparations from which he prepared 24,000 sections. He studied the cornea fresh and after fixation in Flemming's solution and in corrosive sublimate. The best stains were obtained with Biondi's triple stain after fixation in corrosive sublimate. Control experiments, such as burning or scratching the cornea, infecting with pus organisms, etc., proved negative in all of the twenty-two rabbits tried.

Experiments proved that rabbits were readily susceptible to vaccinia. Small pustules developed in four days after inoculation of the nostril, and healed in thirteen days; later inoculations on the same animal resulted negatively.

After inoculation of the cornea the conjunctival secretion increased up to the sixth day. If the primary injury was severe, ulcers were produced, but healed in a few days.

The inoculations were so arranged that the early lesions could be studied at intervals of six hours, the later lesions at intervals of twelve hours.

In the first six hours little could be noticed beyond the mechanical injury, the invasion of a few leucocytes, and the presence, as early as three hours after inoculation, of vaccine bodies.

In the next six hours the epithelium was swollen, leucocytes were numerous, and certain drop-like bodies from 1.5 to 5 μ in size appeared in the cells near the inoculation wound. Usually several were present in a cell, and they were surrounded by a clear zone.

In the next twelve hours the basal cells of the epithelium were much swollen and the vaccine bodies had steadily increased in number, especially in the upper layers of cells.

Study of the lesions at later periods showed the same peculiar affection of the epithelial cells spreading peripherally, where the same changes could be found that at first occurred in the centre around the inoculation wound. It was therefore possible to study the whole development of the lesion in one specimen in which the process was well advanced.

The author next treats in detail of the various bodies found in the cells. The colors given refer to those obtained with Biondi's triple stain.

The *naked bodies* have no envelope or border and are not surrounded by any granules or thread-like zone. They stain deeply with the ordinary nuclear stains, and are not easily decolorized. With Biondi's stain they are colored dark blue, as are the other bodies mentioned below. They are usually spherical in shape, have no definite structure, appear at first in depressions in the nucleus, later in the protoplasm, and vary greatly in number and size in a given cell.

A second form of body is surrounded by a homogeneous mantle which is of variable thickness and stains red.

A third form, which is the most abundant of all, is spherical, varies much in size, and is surrounded by red granules.

In a fourth form delicate, somewhat granular filaments extend outward from the central blue body and are inserted into the surrounding protoplasm of the cell.

Bodies also occur in the form of a half-moon, sickle, spindle, etc.; they are not infrequent, appear later than the spheroid forms, stain light to dark or purplish-blue, and are found close to the nucleus only. Usually they are not naked, but are surrounded by at least a few reddish granules.

Other forms than those mentioned are met with, but are rare. Careful study shows that all of these bodies undergo the same degenerative changes. They swell and stain more lightly, a progressive formation of vacuoles takes place within them, and they often become lobulated. The bodies in breaking down form granules and drops which stain red.

The cells containing these bodies may be well preserved when the bodies show marked degeneration, and *vice versa*. Sometimes the protoplasm of the cells shows a filamentous structure.

Fifteen corneae were examined on a warm stage immediately after excision. The same bodies seen in hardened preparations could be made out. Careful examination of them failed to show any change of form or evidence of motion.

Of the micro-chemical reactions of these bodies the most interesting, perhaps, are that when treated with a saturated solution of common salt they disappear, while 5 per cent. acetic acid brings them out very sharply.

The second part of the work deals with the various hypotheses in regard to the nature of the vaccine bodies. Salmon believes that they are masses of chromatin derived from leucocytes which have gotten into the wound from the conjunctival sac. Others think they are derived from the nuclei of the epithelial cells or from extruded nucleoli. Many others, like Guarnieri and L. Pfeiffer, believe that these bodies are protozoa which are multiplying in the cells.

In the third part of his work Hückel advances the view that these various bodies are derived from the protoplasm of the epithelial cells, because while most of them lie in vacuoles in the protoplasm a few do not; these latter are usually sharply defined, but occasionally fade off into the surrounding protoplasm. On this account he believes that the bodies are derived directly from the cell protoplasm, and he finds additional proof for this view in the filaments which sometimes connect the bodies with the surrounding protoplasm.

He regards the various bodies as of equal importance; they arise in the same way, all lie generally close to the nucleus, react alike to reagents, and undergo the same degenerative changes. Various combinations of the different forms and transition stages between them are met with.

With various irritants it is possible to produce red but no blue bodies within the epithelial cells of the cornea. He therefore concludes that the blue bodies arise through the specific action of the vaccine poison, because they cannot be produced in any other way. He says that while his work is negative as to the nature of the vaccine virus, and throws no light on this question, it has cleared up the nature of the so-called vaccine bodies.

The Epidermoids and Dermoids of the Arachnoid of the Brain and Cord.—TRACHTENBERG (*Virchow's Archiv*, 154, ii. 274) reports a case of multiple cholesteatomata which certainly seems to be unique. A man, fifty-five years of age, suffered from progressive paralysis of his lower extremities for two or three years before his death. A clinical diagnosis of compression myelitis was made. The post-mortem examination showed a large number of firm, yellow granules and nodules of various sizes scattered along the posterior surface of the cord. At the lower end of the cord was a cystic tumor measuring 4 cm. long and 1 cm. thick, and filled with yellow, gruel-like material. Small nodules similar to those along the cord were found also at the base of the brain, over the left frontal lobe, and in the lateral ventricles; in the right they were especially numerous and large.

Examination of the tumor at the lower end of the cord showed its soft contents to be masses of fat. No epithelial lining to the cyst could be found. In the wall were fibrous tissue, smooth muscle-fibres, sebaceous and coil glands, fat-tissue, ganglion cells, and nerves. Some of the small cysts in the ventricles were lined with epithelium. The writer believes that some developmental disturbance must have occurred the whole length of the cord at the time of the closure of the neural canal; this view is strengthened by the fact that the tumors are all on the posterior surface of the cord. He concludes that his case strongly favors the views advanced by Bostroem in regard to cholesteatomata, namely, that those which contain no hairs are due to aberrant foetal epidermic cells alone, while those that contain hairs are due to aberrant cells of the epidermis and cutis.

Bostroem believes that such a wandering in the central nervous system of foetal epidermic cells, either alone or in combination with cells of the cutis, occurs quite frequently, but that the cells can develop only when they come in contact with the vascular pia or a plexus.

The New Formation of Elastic Fibres in the Intima.—JORES (*Ziegler's Beitr. z. path. Anat.*, 1898, xxiv. S. 458) publishes his interesting studies on the new formation of elastic tissue in endarteritis. He concludes that endarteritis is a compensatory process not only in the sense in which Thoma uses the term, but also with regard to the new formation of a functionally active elastic tissue for the vessel wall.

He produced, by ligating arteries in animals, a condition analogous to endarteritis in man. The ligated carotid arteries of rabbits killed twenty days after the operation showed a definite thickening of the intima. The intima appeared very cellular, and the cells were surrounded by a fine network of elastic tissue. This picture changed but little in the further course of the process. The elastic fibres developed early and not, as formerly held, in the late stages of endarteritis. The first formation was noted eight days after ligation. The elastic tissue appeared as extremely fine punctate lines in close relation to the protoplasm of the connective-tissue cells.

By Weigert's method he was able to demonstrate that the formation of elastic fibres occurs regularly in endarteritis thrombotica. In a vein of an amputation stump, six months after the operation, and often in phlebitis, he found numerous fine elastic fibres in the intima.

Jores does not hold the commonly accepted theory that the elastic tissue